

CONTENTS FOR

APPLIED THERMAL SCIENCES

Volume 1, Nos. 1-6, 1988

Number 1

HEAT AND MASS TRANSFER PROCESSES AND EQUIPMENT

- 1 Application of the Analogy Between Heat and Mass Transfer to Diagnosis of Complex Flows
Ye.P. Dyban, E.Ya. Epik, L.Ye. Yushina, and V.D. Mel'nik
- 7 Pressure Losses in Injection into a Flat Duct Carrying a Crossflow
A.I. Mazur and L.A. Rumyantseva
- 16 Effect of Curvature in Cascades of Cooled Turbine Blades
V.A. Zhuravlev, S.Z. Kopelev, and S.V. Gurov
- 21 Concentration of Soot in Products of Combustion of Motor Fuels in a Constant-Volume Chamber
M.V. Stradomskiy and Ye.P. Vasil'yev
- 24 An Integral Method for Evaluation of Wall Jets
B.S. Soroka and A.Ya. Kravets
- 31 Heat and Mass Transfer in a Slot Between Disks
V.V. Faleev and N.V. Zavarzin
- 35 Correlation of Experimental Data on the Efficiency of Film Cooling Produced by Injection at an Angle
N.N. Kortikov and Yu.A. Smirnov
- 39 Heat Transfer in Pipe Flow of Gas Oils
N.M. Turchin, A.A. Tsyganok, A.A. Gribov, G.V. Borodenko, and E.A. Raud
- 44 Simulation of the Thermal Conditions in a Gyroscope
Yu.P. Dobryanskiy, A.I. Munitsa, and V.S. Morganyuk
- 48 Effect of Thermal and Velocity Disequilibria on the Radiometric Properties of Heterogeneous Combustion Products
V.A. Kuz'min and Ye.I. Maratkanova
- 53 Mathematical Modeling of Thermoelastic Stresses in a Solidifying Steel Ingot
F.V. Nedopekin, V.V. Belousov, and Ye.A. Solonar'

ENHANCEMENT OF HEAT TRANSFER IN INDUSTRIAL APPLICATIONS

- 58 Use of Alternating Regimes to Accelerate Kiln Drying
Z.Yu. Mazyak and I.N. Il'kiv
- 62 Isothermal Extrusion of High-Strength Aluminum Alloys
B.M. Gotlib, G.L. Khimich, and L.A. Shterenzon
- 66 Analysis of Heat Transfer in the Crystallization of Calcium Fluoride
V.I. Deshko and A.Ya. Karvatskiy
- 73 Control of the Inlet Temperature Field of a High-Temperature Turbine in Terms of Measurements Taken in the Stream of That Unit
A.A. Khalatov, V.A. Yeremenchuk, and N.G. Vorob'yev
- 78 Comparison of the Exergetic Efficiencies of Various Gas Turbine Startup Procedures
Yu.S. Osered'ko, V.N. Los', and A.P. Arkhipov

THERMOPHYSICAL PROPERTIES

- 81 Thermal Conductivity of Polyethylenes at High Pressure
V.P. Privalko and N.A. Rekhteta
- 86 Thermophysical Properties and Heat Resistance of Ultralight Foam Composites
Yu.P. Zarichnyak and A.V. Klimovich

CONTENTS FOR

APPLIED THERMAL SCIENCES

Volume 1, Nos. 1-6, 1988

Number 1

HEAT AND MASS TRANSFER PROCESSES AND EQUIPMENT

- 1 Application of the Analogy Between Heat and Mass Transfer to Diagnosis of Complex Flows
Ye.P. Dyban, E.Ya. Epik, L.Ye. Yushina, and V.D. Mel'nik
- 7 Pressure Losses in Injection into a Flat Duct Carrying a Crossflow
A.I. Mazur and L.A. Rumyantseva
- 16 Effect of Curvature in Cascades of Cooled Turbine Blades
V.A. Zhuravlev, S.Z. Kopelev, and S.V. Gurov
- 21 Concentration of Soot in Products of Combustion of Motor Fuels in a Constant-Volume Chamber
M.V. Stradomskiy and Ye.P. Vasil'yev
- 24 An Integral Method for Evaluation of Wall Jets
B.S. Soroka and A.Ya. Kravets
- 31 Heat and Mass Transfer in a Slot Between Disks
V.V. Faleev and N.V. Zavarzin
- 35 Correlation of Experimental Data on the Efficiency of Film Cooling Produced by Injection at an Angle
N.N. Kortikov and Yu.A. Smirnov
- 39 Heat Transfer in Pipe Flow of Gas Oils
N.M. Turchin, A.A. Tsyganok, A.A. Gribov, G.V. Borodenko, and E.A. Raud
- 44 Simulation of the Thermal Conditions in a Gyroscope
Yu.P. Dobryanskiy, A.I. Munitsa, and V.S. Morganyuk
- 48 Effect of Thermal and Velocity Disequilibria on the Radiometric Properties of Heterogeneous Combustion Products
V.A. Kuz'min and Ye.I. Maratkanova
- 53 Mathematical Modeling of Thermoelastic Stresses in a Solidifying Steel Ingot
F.V. Nedopekin, V.V. Belousov, and Ye.A. Solonar'

ENHANCEMENT OF HEAT TRANSFER IN INDUSTRIAL APPLICATIONS

- 58 Use of Alternating Regimes to Accelerate Kiln Drying
Z.Yu. Mazyak and I.N. Il'kiv
- 62 Isothermal Extrusion of High-Strength Aluminum Alloys
B.M. Gotlib, G.L. Khimich, and L.A. Shterenzon
- 66 Analysis of Heat Transfer in the Crystallization of Calcium Fluoride
V.I. Deshko and A.Ya. Karvatskiy
- 73 Control of the Inlet Temperature Field of a High-Temperature Turbine in Terms of Measurements Taken in the Stream of That Unit
A.A. Khalatov, V.A. Yeremenchuk, and N.G. Vorob'yev
- 78 Comparison of the Exergetic Efficiencies of Various Gas Turbine Startup Procedures
Yu.S. Osered'ko, V.N. Los', and A.P. Arkhipov

THERMOPHYSICAL PROPERTIES

- 81 Thermal Conductivity of Polyethylenes at High Pressure
V.P. Privalko and N.A. Rekhteta
- 86 Thermophysical Properties and Heat Resistance of Ultralight Foam Composites
Yu.P. Zarichnyak and A.V. Klimovich

MEASUREMENTS, CONTROL AND AUTOMATION

91 Determination of the Specific Heats of Materials by Means of the Inverse Problems in Heat Conduction
Yu.M. Matsevityy and S.F. Lushpenko

96 A Heat Flux Meter for Thermophysical Investigations
T.G. Gritsenko, L.V. Dekusha, and L.A. Lukashevich

99 Analysis of the Composition of Liquid Fuels by Means of Resonance Atomic Absorption
A.I. Lavrinenko, M.I. Fayngol'd, and V.S. Barabokhin

103 Determination of the Temperature Reached and Duration of Heating in a Nonlinear Thermal System
L.N. Stronskiy and A.V. Suprun

BRIEF COMMUNICATIONS

107 Dynamic Characteristics of a Cooled Plate
V.G. Pavlovskiy, N.G. Ganzha, and G.B. Koshman

111 Method of Evaluating the Temperature Distribution of the Heat of Reaction in Differential Thermal Analysis
A.Yu. Shustrov and L.Ya. Kozlov

CHRONICLE

114 Ukrainian Conference on New Drying Methods Based on Advances in the Theory of Heat and Mass Transfer (September 7-9, 1987, Cherkassy)

117 Sixtieth Birthday of Leonid Filippovich Kozlov

Number 2

HEAT AND MASS EXCHANGE AND EXCHANGERS

1 Effect of the Thickness of Liquid Layer on the Critical Heat Fluxes in Boiling on a Horizontal Wall
V.I. Tolubinskiy, V.A. Antonenko, and G.V. Ivanenko

5 Heat Transfer in a Pseudolaminar Boundary Layer
Ye.P. Dyban, E.Ya. Epik, and T.T. Suprun

11 Factors Affecting the Temperatures of the Blading in High-Temperature Turbines
L.M. Zysina-Molozhen

25 Solution of Certain Problems of Optimizing the Heat Transfer in Flow Over Bodies
A.Sh. Dorfman

35 Aerodynamics of a Free Axisymmetric Jet with Nonuniform Initial Velocity Profile
A.I. Mazur, I.G. Davydenko, and Yu.I. Zakharov

42 Correlation of Experimental Data on Natural Convection Heat Transfer from Isolated Bodies Located on a Flat Wall
A.A. Khalatov, V.V. Orlyanskiy, and A.F. Vasil'yev

46 Transformation of the Dimensionality of the Quasisteady Problem of Heat Conduction for a Plate Heated by a Moving Energy Source
V.G. Prokopov, Yu.V. She-enkovskiy, and N.M. Fialko

51 The Thermal State of a Turbofan Rotor
B.D. Bileka, A.M. Dyachenko, and I.S. Orinichev

58 Correction for the Nonuniform Distribution of Heat Load in Various Passes of Shell and Tube Heat Exchangers
G.Ye. Kanevets and A.A. Demin

62 Maximum Heat Transfer in Two-Phase Thermosiphons with External Downflow Channel
I.L. Pioro and A.Yu. Kalashnikov

68 Unsteady Heat Transfer in Laminar Flow in a Circular Pipe, with Correction for Frictionally Generated Heat
S.A. Karaush

72 Mathematical Modeling of the Conditions of Spontaneous Ignition of Coal in the Worked-Out Space of a Coal Mine
M.G. Reznik, B.A. Spektor, and I.L. Zhislina

76 Optimization of a Two-Stage Drier for Polymer Powders
S.P. Rudobashta, Ye.N. Malygin, and N.V. Kuz'mina

80 Thermal Conditions of the Solidification of Round Steel Ingots in Continuous Horizontal Casting
V.V. Sobolev and P.M. Trefilov

THERMODYNAMICS AND MOTIVE POWER UNITS

85 Heat Transfer in Diesel Engine Combustion Chambers
M.V. Stradomskiy, Ye.A. Maksimov, V.S. Malyarov, and Ye.P. Vasil'yev

92 Analysis of Energy Losses in Heat Shielding (Film Cooling) Systems
G.M. Shchegolev

MEASUREMENT, CONTROL AND AUTOMATION

97 Measurement of Heat Fluxes Through the Refractory Brickwork Walls of Mineral Wool-Producing Furnaces
O.A. Gerashchenko, V.T. Buzynyuk, A.N. Kiptsar, S.Yu. Goberes, and G.L. Abramov

100 Extending the Temperature Range of the IT-4 Thermal Conductivity Meter
T.G. Grishchenko, V.I. Shapovalov, and L.V. Seregina

103 Measurement of the Temperature in a Coal Dust Gasification Vessel
I.A. Vol'chin and Ya.S. Zholudov

EFFICIENCY OF UTILIZATION HEAT AND FUEL

107 General Conclusions on Aerodynamics and Heat Transfer in the Flames of Flat-Jet Burners
B.S. Soroka, A.Ya. Kravets, and V.Yu. Nikitin

BRIEF COMMUNICATIONS

113 Optimum Opening Angles of Baffles in a Shell-and-Tube Exchanger
N.M. Stoyanov

Number 3

HEAT-AND-MASS TRANSFER PROCESSES AND EQUIPMENT

1 Free-Convection Boiling of Mixtures (A Survey)
V.I. Tolubinskiy and N.Yu. Ostrovskiy

14 Onset of Nucleate Boiling on Porous Coated Surfaces (A Survey)
V.A. Antonenko

25 Reliable Transpiration Cooling of Hot-Blast Valves
A.M. Braginskiy, D.M. Konstanchuk, and L.B. Ivanov

31 Evaluation of the Temperature Fields of Electric Metal Oxide Heaters
Ye.Ya. Gimpel'man and T.V. Abakulova

35 Numerical Solution of the Planar Inverse Problem of Heat Conduction
P.G. Kruckovskiy

40 Marching Solution of Conjugate Problems of Heat Transfer of Flow Over Thermally Thin Bodies
B.V. Davydenko

44 Calculation of the Mixture Temperature in a Batch Rubber-Compound Mixer
B.D. Bileka and V.Ya. Kabkov

48 Friction and Heat Transfer in Pipe Flows of Dissociated Gases
Yu.I. Shvets, V.F. Vishnyak, and V.N. Panchenko

53 Prediction of Air Temperatures in Mines with Distributed Cooling
V.P. Chernyak and A.S. Polubinskiy

57 Heat Transfer in an Impacting Circular Jet with Nonuniform Initial Velocity Distribution
A.I. Mazur, Yu.I. Zakharov, and I.G. Davydenko

AUGMENTATION OF HEAT AND MASS TRANSFER IN INDUSTRIES PROCESSES

65 Use of Electroplasmolysis to Accelerate Drying of Apple Pulp
M.K. Bologa, S.Ye. Berzoy, N.I. Botoshan, and V.V. Bordyan
71 Sorptive Properties of Granulated Acidophilin Concentrates
G.P. Bykova, V.V. Mikhalevich, B.N. Protsyshin, and A.Yu. Moskovachenko
75 Optimal Temperature Patterns for the Solidification of Cylindrical Steel Ingots in Continuous Horizontal Casting
V.V. Sobolev and P.M. Trefilov

MEASUREMENT, CONTROL AND AUTOMATION

80 Thermal Imaging in Industry: A Survey
V.P. Vavilov
85 An Instrument for Analysis of Thermal Stresses in Rotating Parts of Gas Turbines
Ye.P. Dyban, V.N. Klimenko, V.Yu. Khavin, and S.L. Polukhin
88 Determination of Gas Concentration in a Liquid Heat Transfer Fluid
V.V. Fisenko and I.G. Gontaruk

EFFICIENT UTILIZATION OF HEAT AND FUEL

92 Distribution of Soot Particles in the Combustion of Atomized Liquid Fuel
M.V. Stradomskiy, Ye.A. Maksimov, A.G. Plita, and Ye.A. Yefremova
97 Break-In Operations of the First UTT-3000 Shale-Oil Processing Plant at the Estonian Regional Power Station
G.P. Stei'makh, V.I. Chikul, A.V. Gavrilin, and Yu.N. Kobzev

BRIEF COMMUNICATIONS

102 Evaluation of Stream Lines in Cyclone Chambers
V.M. Murzhenko and A.A. Khalatov
106 Experimental Investigation of the Efficiency of Transpiration Cooling of Gas-Turbine Impeller Blades by Means of Steam
L.V. Arsen'yev, V.M. Yepifanov, and V.G. Polishchuk

NEW BOOKS

109 Review of: Applications of Turbulence Theory in Engineering: Heat and Mass Transfer in Turbulent Flow, by Ye.P. Dyban and E.Ya. Epik, Kiev, Naukova Dumka Press, 1985, 295 pp.
V.K. Migay

CHRONICLE

111 Tenth International Heat Transfer Conference to be Held in Kiev
112 Sixth All-Union Conference on Automation of Air Quality Monitoring and Regulation
A.V. Primak

Number 4

HEAT- AND MASS-EXCHANGE PROCESSES AND APPARATUS

1 The Boiling Crisis on Surfaces Covered by Capillary Wick Structures (A Survey)
V.I. Tolubinskiy [dec], V.A. Antonenko, and G.V. Ivanenko

16 Calculation of Void Fraction in Boiling on Vertical Walls of a Closed Vessel
V.F. Prisnyakov and N.V. Sitnikova

21 Numerical Solution of the Conjugate Problem of Transient Heat Transfer in Laminar Flow Over a Plate
Yu.I. Shvets, O.I. Didenko, and O.D. Lipovetskaya

26 Balance Equations for Evaluating the Heat and Mass Transfer in a Ventilating System of a Dead-End Mine Gallery
V.P. Chernyak, A.S. Polubinskiy, and Ye.A. Kolodina

31 Efficiency of Film Cooling Produced by a Row of Identical Orifices on a Flat Plate
V.M. Repukhov and O.I. Rakitin

38 Efficiency of a Gas-Vapor-Liquid Cooling Film Downstream of a Tangential Slot
A.A. Vasil'yev

41 Coefficients of Heat Transfer in Boiling of Multicomponent Hydrocarbon Mixtures
V.A. Kravchenko, N.Yu. Ostrovskiy, and A.G. Pitertsev

44 Experimental Study of Adiabatic Vaporization of a Liquid Film from a Rotating Disk
O.A. Dolinskij

50 Heat Transfer Coefficients in Turbulent Flows of Hydrocarbons at Supercritical Pressures
G.I. Isayev, G.K. Abdullayeva, and F.Kh. Mamedov

INTENSIFICATION OF HEAT- AND MASS-EXCHANGE IN ENGINEERING PROCESSES

54 Development and Commercialization of Advanced Techniques for Heat Treatment of Metals
A.A. Dolinskij, N.I. Kobasko, A.A. Korchinskiy, and A.I. Chayka

60 Superposition of Various Forms of Bond Water in Capillary-Porous Materials
V.M. Kazanskiy

64 Heat Transfer in the Heat Treatment of Disks on a Gas Cushion
V.K. Vityukov and V.N. Kolodezhnov

70 Moisture- and Temperature-Induced Planar Deformation in the Drying of Porous Solids
P.P. Lutsik

82 Energy Characteristics of Contact Drying of Cloth
B.S. Sazhin, V.A. Reutskiy and T.Yu. Zhuravleva

THERMODYNAMICS AND THERMAL POWER PLANTS

86 Thermodynamic Efficiency of Flexible Fossil-Fired Power Plants Electrically Gasifying Coal During Slack Periods
G.P. Verkhivker and Y. Flyugbay'

THERMOPHYSICAL PROPERTIES

91 Effect of Combined Radiative and Conductive Heat Transfer on the Determination of the Thermal Diffusivity of Calcium Fluoride by the Instantaneous Source Method
A.N. Alabovskiy, G.B. Varlamov, and V.I. Deshko

97 Temperature Dependence of the Heat Capacity of Co and Fe-Ni Alloys in the Amorphous and Crystalline States
G.M. Koval', V.N. Novikov, N.N. Stolyarov, and Yu.R. Chashkin

MEASUREMENTS, CONTROL AND AUTOMATION

100 A Device for Measuring the Thermophysical Properties of Electrically Conducting Materials at Low Temperatures
S.Ye. Buravoy and V.A. Samoletov

EFFICIENCY OF HEAT AND FUEL UTILIZATION

105 Structure (Particle Size Distribution) of the Stream of Soot Particles in a Flame in Pulsed Combustion of Liquid Motor Fuels in a Constant-Volume Chamber
M.V. Stradomskiy, Ye.P. Vasil'yev, and Ye.A. Yefremova

109 Characteristics of a Low-Waste Coal Combustion Process in Thermal Power Plants
Ye.V. Samuylov, I.B. Rozhdestvenskiy, and V.I. Borisov

NEW PRODUCTS

113 A Vacuum Emulsifier That Prepares a Highly Disperse Product Identical in Structure to Natural Milk
115 A Fruit and Vegetable Homogenizer

OBITUARY

117 Vsevolod Ivanovich Tolubinskiy

Number 5

HEAT- AND MASS-EXCHANGE PROCESSES AND APPARATUS

1 Conditions Under Which the Impact of a Circular Jet Produces the Maximum Average Heat Transfer Coefficients
Ye.P. Mazur, A.I. Dyban, and I.G. Davydenko
6 Temperature Field of an Isotropic Rock Body Disrupted by a Horizontal Circular Tunnel
V.A. Kireyev and V.P. Chernyak
11 Characteristics of High-Temperature Gas-Loaded Heat Pipes
Ye.N. Shevchuk and V.V. Prokopov
17 Heat Transfer in Impingement of a Swirled Jet on a Baffle
K.N. Agafonov, A.M. Sal'nikov, and B.N. Yudayev
21 Generation and Evolution of a Water-Condensate Aerosol and Prevention of Icing of the Air-Intake Lines of Stationary Gas Turbines
V.P. Bakhанov, M.V. Buykov, A.I. Yeshchenko, and A.A. Manzhara
29 Analysis of Formulas for Calculating Radiant Energy Losses from a Burning Small Particles
A.V. Gorbатов and Ye.V. Samuylov
33 Temperatures in a Rotating Heat Exchanger Assembly Used in Heat Recovery in Production of Metal Tapes
T.R. Zinchenko and A.P. Rashchepkin
37 Effect of Micro- and Macro Surface Roughness on Heat Transfer in Condensation and Boiling
O.P. Ivanov, V.O. Mamchenko, and A.L. Yemel'yanov
43 Numerical Simulation and Analysis of the Efficiency of Heat Transfer in Impinging-Jet Recuperators
Yu.K. Malikov, V.G. Lisiyenko, G.K. Malikov, Yu.V. Kryuchenkov, and N.A. Chusovitin

THERMODYNAMICS AND THERMAL POWER PLANTS

50 Determining the Parameters of Axial Fans in the Cooling Systems of Vehicular Power Plants
B.Ye. Baygaliev and S.V. Shelakhayev

MEASUREMENTS, CONTROL AND AUTOMATION

54 Measurement of the Effective Thermal Conductivity of Inhomogeneous Flat Insulation in the Presence of a Thermal Background
Ye.A. Belov and G.Ya. Sokolov
59 Prospects for Developing Thermal Methods of Gas Analysis
B.N. Onopa and L.V. Zasil'skiy
63 A Device for Measuring Rock Temperature and Gas Evolution in Blast Holes
F.B. Fast, I.Ya. Yeremin, and I.A. Ryzhenko

EFFICIENCY OF HEAT AND FUEL UTILIZATION

- 66 Beam Attenuation Coefficients of Dust Particles from Waste-Heat Boilers
V.A. Zaytsev, I.V. Gorbatenko, and M.A. Taymarov
- 71 Combustion of Pulverized Coals Low in Volatiles at High Concentrations in the Feed Stream
V.N. Kryzhanovskiy and L.A. Kesova
- 77 Oxidative Pyrolysis of Pulverized Brown Coal in a Swirled Flow
V.G. Kashirskiy, Yu.A. Vasil'yev, V.P. Udalov, and A.K. Kozlov
- 82 Thermophysical Properties of Molten Fly Ash
V.I. Sagadeyev
- 85 Optimization of the Thermal Conditions in the Reheating Furnace of a Ball Rolling Mill
A.K. Sokolov and N.A. Kiyashko
- 93 Increasing the Thermal Efficiency of Bell Furnaces
Yu.I. Usenko, A.N. Minayev, Yu.F. Gorshkov, and V.I. Ivanov
- 96 Spectral Reflective Properties of a Coating Designed to Enhance the Emissivity and Absorptivity of Furnace Linings
O.Ye. Khlebnikov, A.A. Khalatov, and V.S. Pikashov

ENVIRONMENT PROTECTION

- 99 Formation of Thermal Nitric Oxide in the Presence of Excess Oxidizing Agent and Methods of Suppressing Its Generation
G.N. Lyubchik
- 107 Disposal of Organochlorine Waste Products by Incineration
V.I. Dmitriyev and G.S. Stuchkov

BRIEF COMMUNICATIONS

- 112 Control of Relative Humidity of Conditioned Air in Large Hypobaric Cold-Storage Chambers
V.Ya. Zhuravlenko and V.Ye. Pisarev

EXPERIMENTAL DEVICES, AUTOMATED SYSTEMS, AND PRODUCTION SAMPLES

- 115 An Automated Heat and Mass Transfer Research System Made up of Standard Components
S.V. Mishchenko, V.Ye. Podol'skiy, and A.A. Churikov
- 118 A Modified Calorimetric Fault Detector
V.V. Platonov, V.V. Dymchenko, and Ye.G. Ivanova

Number 6

HEAT AND MASS TRANSFER

- 1 Boiling on a Submerged, Thin Mesh-Covered Tube in the Case of Sudden Input of Large Heat Fluxes
V.I. Tolubinskiy [dec.], V.A. Antonenko, Yu.N. Ostrovskiy, and Yu.A. Spivakov
- 7 Flashing Adiabatic Flows Through Convergent Ducts
A.A. Dolinskiy and A.I. Nakorchevskiy
- 13 Local Heat Transfer Coefficients to Baffle-Impinging Air-Droplet Jets (Mist Cooling)
Ye.P. Dyban, A.I. Mazur, and V.B. Polovinkin
- 19 Efficiency of a Diathermal Cooling Film Protecting a Radiatively and Convectively Heated Adiabatic Wall
V.M. Repukhov, Yu.N. Bashkatov, and A.N. Semenov
- 23 Thermal Design of Electronic Equipment. A Survey
L.A. Kozdoba and V.N. Mudrikov
- 37 Efficiency of Cooling the Endwall of a Nozzle Blading Channel by Tangential Injection (Blowing) of Air
B.V. Sudarev, A.A. Chernysh, E.G. Narezhnyy, and V.A. Mart'yanov

42 Numerical Investigation of the Heat Transfer in Condensation of Vapor on a Free Jet of Liquid
K.V. Dement'yev and G.S. Vinakovskaya

46 Some Features of Operation of a Throttle in a Pressure Line
Yu.M. Orlov

51 Determination of the Characteristic Temperature in Cooling of Coal Seams
I.R. Vengerov and V.K. Chernichenko

56 Free Deformations of Porous Solids in the Course of Convective Drying
P.P. Lutskik, B.P. Dromenko, and V.A. Polonskiy

63 Motion of Solid Phase in the Acceleration Zone of a Vertical Air-Transport Line
Yu.G. Klimenko, L.F. Voronina, and L.N. Dynnik

67 Optimization of High Temperature Fluidized-Bed Drying of Fusible Materials
Yu.Ya. Kaganovich

THERMAL POWER PLANTS

71 Ceramics in High-Temperature Gas Turbines: A Survey
I.I. Kirillov, A.V. Sudarev, and A.G. Reznikov

92 Thermodynamic Efficiencies of Fossil-Fired and Nuclear Power Plants
L.N. Andreyev, V.R. Nikul'shin, and T.G. Zayarnaya

THERMAL MEASUREMENTS

97 Use of Condensation in Temperature Measurements
V.A. Melnichenko

EFFICIENT FUEL UTILIZATION

101 Flameless Catalytic Combustors of Organic Fuels
A.N. Voychenko, Ya.L. Volchik, G.K. Kotyrlo, and F.F. Lezhenin